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10/549,840	04/03/2006	Mauro Pedretti	27793-00100USPX	3709	
61060	7590	06/05/2008	EXAMINER		
WINSTEAD PC		BROOKMAN, STEPHEN A			
P.O. BOX 50784		ART UNIT		PAPER NUMBER	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/549,840	PEDRETTI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Stephen Brookman	4114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 09/14/2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-20 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 14 September 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1.) Certified copies of the priority documents have been received.  
 2.) Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/14/2005</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____ .                        |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **17. Figure 8 includes item 17, which is not described in the specification as it appears.**
2. **The drawings are objected to under 37 CFR 1.83(a) because they fail to show the gas-tight inner skin as described in the specification description of Figure 8.** Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).
3. **The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “17” has been used to designate both the unnamed item in Figure 8 (see above) and the gondola in Figures 12 and 13.**
4. **The drawings are objected to because the type of projection (i.e., top, bottom, front) in Figure 9 is unclear and not designated within the specification.** It is not clear whether the view in Figure 9 is a top, bottom, or front projection.
5. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be

labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objections to the drawings will not be held in abeyance.

### ***Specification***

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7. **The abstract of the disclosure is objected to because the length of the abstract exceeds 150 words and the abstract uses the phrase "the inventive lifting body."** Correction is required. See MPEP § 608.01(b).

8. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### ***Arrangement of the Specification***

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A “Sequence Listing” is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required “Sequence Listing” is not submitted as an electronic document on compact disc).

9. The disclosure is objected to because of the following informalities:
- a. **The applicable sections of the specification are not labeled as required.**
  - b. **The description of Figures 4 and 5 on page 2 include reference to a “third design.” This is unclear.**
  - c. **On page 3, in the description of Figure 1, the term “compression member” is not provided with a drawing reference number following its first use and is therefore rendered unclear upon initial reading.**

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to Claim 1, it is not clear if the lifting body includes a gas-tight skin or if the gas-tight skin is part of the airship. The preamble recites the intended use phrase of, "for an airship of a type having a gas-tight skin and rigid components" which recites the gas-tight skin as part of the unclaimed airship. However, lines 6 and 10 recite "the gas-tight" skin which appears to include a gas-tight skin as part of the lifting body. Because the lifting body is disclosed as having a gas-tight skin the claims will be examined as if the gas-tight skin is a positively claimed element of the lifting body.

With regard to Claim 13, while the intended result of the design is claimed, the apparatus and structure by which this result is achieved is not distinctly claimed. The design by which torque is not conducted into the compression members is unclear and not claimed.

With regard to Claim 14, the term "low" is a relative term which renders the claim indefinite. The term "low" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art

would not be reasonably apprised of the scope of the invention. The level of extensibility is indeterminate and indefinite.

Claim 19 recites the limitation "geodetic lines" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claims 2-12 and 15-18 inherit the issues of the claims from which they depend.

### ***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraph of 35 U.S.C. 102 that forms the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-4, 6-9, 14-16, and 20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Pedretti (U.S. Pre-Grant Publication 2002/0157322 A1).

With regard to Claim 1, Pedretti discloses a pneumatic structural element (which is capable of being used as a lifting body for an airship, for example) having:

- At least one node element (3) disposed on each end of the structural element (as in the front and rear, as seen in Figure 10, or nose and rear of the invention when used as a lifting body)
- At least one compression member (i.e., pressure rod (2)) disposed on and connected to the gas-tight skin (1), whereas the opposite ends of the compression member are anchored to nodes (i.e. "formed as nodes," as in Pedretti, paragraph 19)

- At least two tensile bands (i.e. tension elements (4)) disposed relative to each compression member, the tensile bands running in opposite spiral directions around the gas-tight skin from one end of the compression member to another end of the same compression member and being anchored in the same node elements as the compression member (i.e., embracing the hollow body (1) in the form of a screw with opposite circulating senses, as disclosed in Pedretti, paragraph 20 and Figures 8 and 10, and connecting to opposite ends of the compression member, or pressure rod (2), in the nodes of the compression member, as seen in Figures 8 and 10)
- Means for attaching rigid components of another structural element (i.e., rigid components of an airship) to compression members (via the node elements, as seen in Pedretti, Figure 7, whereas the yoke (19) is a structural element connected to the compression member of each pneumatic structural element)

With regard to Claim 2, Pedretti discloses a plurality of compression members (i.e., pressure rods (2) in Figure 10).

With regard to Claim 3, the pressure rods have bending elasticity, since they may comprise materials such as bamboo (Paragraph 23) which has bending elasticity. It should also be noted that all physical objects have elasticity to some degree.

With regard to Claim 4, the pressure rods run along surface lines of the hollow body, as visible in the figures (especially Figure 10).

With regard to Claim 6, the compression members (pressure rods) disclosed by Pedretti may be made from composite materials using carbon fibres in a suitable plastics material matrix (paragraph 24).

With regard to Claim 7, the compression members disclosed by Pedretti are positioned rotationally symmetric with respect to each other, as seen in Figure 10.

With regard to Claim 8, Pedretti discloses the pressure rods as being attached to the hollow body (gas-tight skin) and is deemed to be permanently bonded thereto.

With regard to Claim 9, it has been held that the term “integral” (i.e., integrated) is sufficiently broad to embrace constructions united by such means as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973). In Claim 9, any attachment to the gas-tight skin (i.e., sleeves (13) on the hollow body that are able to receive the compression member (i.e. pressure rod, 2), as illustrated in Figure 3 and in Paragraph 23) is regarded as being considered integral.

With regard to Claim 14, the tensile elements of Pedretti (i.e., aramid fibers in paragraph 24 or polyester cords in paragraph 23) have low extensibility and help press the compression members (pressure rods) against the gas-tight skin.

With regard to Claim 15, the reference tensile bands are textile materials, such as aramid fibers (paragraph 24), which have low extensibility.

With regard to Claim 16, Pedretti discloses using aramid fibers in the tensile bands (tensile elements, paragraph 24).

With regard to Claim 20, all elements are *provided* as described above which form a pneumatic structural element (i.e., a lifting body for an airship).

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Pedretti (U.S. Pre-Grant Publication 2002/0157322 A1) in view of Hagenlocher (U.S. Patent 6,056,240).

Pedretti calls for composite materials (paragraph 24), but does not disclose one specific composite material. Hagenlocher discloses the use of fiberglass reinforced plastic in airship structures (column 4, lines 7-8). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize fiberglass reinforced plastic as taught by Hagenlocher in the compression members as the structural composite

material in the apparatus of Pedretti in order to increase the resilient strength of the compression members without compromising in weight.

17. Claims 10-13, and 18 rejected under 35 U.S.C. 103(a) as being obvious over Pedretti (U.S. Pre-Grant Publication 2002/0157322 A1) in view of Bell (U.S. Patent 7,207).

With regard to Claim 10, Pedretti discloses the claimed invention except for the use of shell-shaped nodes laid over the nose or rear of the gas-tight skin. Bell discloses an airship using a web network as seen in Figure 1 for supporting the pressurized gas container (skin, described on Page 2, lines 55-58). Bell's silk ribbons (g) are connected to node elements as seen in Figure 1. Bell's node elements are seen as shell-shaped and laid over the nose and rear of the gas-tight skin of Bell's airship. It would have been obvious to one having ordinary skill in the art at the time of the invention to use the node elements of Bell in the structure of Pedretti as a means for connecting the supporting structure of the tension elements (i.e. tensile bands) and pressure rods (i.e. compression members) in order to more effectively conduct loading between the ends of the pneumatic structural element and the tension elements and compression members.

With regard to Claim 11, Pedretti discloses the claimed invention except for the use of annular nodes laid around the nose or rear of the gas-tight skin. In addition to the airship web network disclosed by Bell and discussed above, Bell shows nodal elements in Figure 3 which connect as annular rings near the nose and rear of the airship. It would have been obvious to one of ordinary skill in the art at the time of the

invention to use the annular node elements of Bell in order to connect the tension elements (i.e. tensile bands) and pressure rods (i.e. compression members) of Pedretti for the purpose of conducting loading between the ends of the pneumatic structural element and the tension elements and compression members. Further, the unified connection makes multiple pieces unnecessary, simplifying the assembly process.

With regard to Claim 12, Pedretti does not disclose the two ends of the pressure rods (i.e. compression members) being permanently bonded to annular node elements. Bell discloses the structure discussed above and includes the disclosure that the web network is stitched together (i.e., permanently bonded) at intersections (page 2, lines 68-69). Therefore, the annular nodes discussed above are permanently bonded to the structural members of Bell. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the permanent bonding between annular nodes and support structure of Bell in the structure disclosed by Pedretti in order to maintain connection between nodes and compression members permanently so that the elements do not shift or release, causing loss of support.

With regard to Claim 13, the combination of Pedretti and Bell, as taught above, has the same structure as that of the instant application. Therefore, the limitations of Claim 13 would inherently be met by the structure created by the obvious combination of Pedretti and Bell, as discussed above, since all claimed structures have been met.

With regard to Claim 18, the structure disclosed by Pedretti further includes the tensile lines (tension elements) as being along geodetic lines of the gas-tight skin between node elements (paragraph 23).

18. Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Pedretti in view of Ross (U.S. Patent 1,788,595). Pedretti discloses substantially the claimed invention except for the use of at least one steel cable in each tensile band. Ross discloses tension members (6) that are rods or cables. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use cables as tension members, as taught by Ross, in the structure of Pedretti, for the same purposes. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material. Steel is a known choice for strength and flexibility, as required by such a design. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use steel as the cable material to obtain the desired strength, flexibility, and durability.

19. Claim 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Pedretti and Bell as applied to Claims 1, 11, 12, and 13 above and further in view of WO 2004/001163 (Reference the disclosure of the equivalent publication, U.S. 2006/0099357 A1). Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15. Pedretti discloses the tension members (4) being mutually secured against movement at (8) in Paragraph 29, lines 3-5, but does not disclose deflection elements provided at their intersection. The abstract

and front figure of WO2004/001163 disclose a deflection element for a hollow body that fixes the pull strips (i.e., tension members) in such a way that the lines of the tensile bands intersect at an intersection, but the tensile bands themselves pass from one line to another in the direction of the screw motion (i.e., geodetic lines). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide Pedretti with deflection elements, as taught by WO2004/001163 in order to adjust the direction of the pulling forces of the tension members of the structure disclosed above.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Brookman whose telephone number is (571) 270-5513. The examiner can normally be reached on Monday through Thursday 10:00 AM EST to 4:00 PM EST, away alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Nguyen can be reached on (571) 272-6952. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John Q. Nguyen/  
Supervisory Patent Examiner, Art Unit 4114

/Stephen Brookman/  
Examiner, Art Unit 4114